

ABSTRACT

A semiconductor element, a semiconductor sensor, and a semiconductor memory element are provided, in which an MFMIS structure having a lower electrode and an integrated circuit can be integrated. An epitaxially grown $\gamma\text{-Al}_2\text{O}_3$ single crystal film (2) is disposed on a semiconductor single crystal substrate (1), and an epitaxial single crystal Pt thin film (3) is disposed on the $\gamma\text{-Al}_2\text{O}_3$ single crystal film (2).